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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/670,522	09/26/2003	Heung-Kyu Jang	102-1005	6502

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EXAMINER	
FERGUSON, MARISSA L	

ART UNIT	PAPER NUMBER
2854	

DATE MAILED: 07/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/670,522	JANG, HEUNG-KYU	
	Examiner	Art Unit	
	Marissa L Ferguson	2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 6 and 7 are objected to because of the following informalities: The claims are not numbered consecutively. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4,7 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Inagaki et al. (JP 04-140763).

Regarding claim 1, Inagaki et al. teaches a plurality of paper feeding paths (38,68) along which a printing paper is fed, a main feed roller (34a) along which the printing paper is conveyed to the image forming unit (12) of the image forming apparatus and wherein a plurality of paper feeding paths are disposed along an outer circumference of the main feed roller (Figure 1).

Regarding claim 2, Inagaki et al. teaches wherein the paper feeding paths are confluent along a connecting conveyance path (40) by the main feed roller, and the connecting conveyance path (24) is connected to a main conveyance path which guides the printing paper to the image forming unit of the image forming apparatus.

Regarding claim 3, Inagaki et al. teaches a sub feed roller (34a), which is rotatably disposed on the connecting conveyance path.

Regarding claim 4, Inagaki et al. teaches wherein the sub feed roller adjusts and aligns a position of the printing paper, which is conveyed along the connecting conveyance path (Abstract).

Regarding claim 7, Inagaki et al. teaches at least one pinch roller (34b) rotating in tight contact with outer circumference of the main feed roller (34a) and disposed at an exit path of the paper feeding paths.

Regarding claim 12, Inagaki et al. teaches a returning conveyance path (56) along which the printing paper is returned to provide double-sided printing.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki et al. (JP 04-140763) in view of Allen et al. (US Patent 6,497,179).

Regarding claim 5, Inagaki et al. teaches the invention claimed, however he does not explicitly disclose a paper sensor disposed on the connecting conveyance path and between the main feed roller and the sub feed roller to determine whether the printing paper being conveyed is a transparent material.

Hashimoto teaches an image forming apparatus that discloses a sensor located on a conveyance path and between a feed roller (17) and sub feed roller

(15). However, Hashimoto does not teach a paper sensor that determines whether the printing paper is transparent. Allen et al. distinguishes transparent media using a detector (Abstract).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention taught by Inagaki et al. to include a sensor located between a main feed roller and a sub feed roller as taught by Hashimoto et al., since Hashimoto et al. teaches to provide an efficient way of transporting sheets and further modify Inagaki et al. to include a paper sensor as taught by Allen et al., since Allen et al. teaches the use of the medium detector to provide an acceptable control signal to avoid damage to the printer.

4. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki et al. (JP 04-140763) in view of Hashimoto et al. (US Patent 6,445,903).

Inagaki et al. teaches the invention claimed, however he does explicitly disclose a pinch roller assisting the conveyance of the printing paper by rotating in tight contact with an outer circumference of the sub feed roller. Hashimoto et al. teaches a pinch roller (17a-c) assisting the conveyance of the printing paper by rotating in tight contact with an outer circumference of the sub feed roller (Figure 1).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention taught by Inagaki et al. to include at least one pinch roller in contact with the sub roller as taught by

Hashimoto et al., since Hashimoto et al. teaches that such a modification would be beneficial for facilitating media movement.

5. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki et al. (JP 04-140763) in view of Takahasi et al. (US Patent 5,839,014).

Regarding claims 8,9 and 11, Inagaki et al. teaches the invention claimed, however he does not explicitly disclose a cassette conveyance path to guide the printing paper fed from at least two paper feeding cassettes and a tray conveyance path to guide the printing paper fed from a manual paper feeding tray. Takahashi et al. teaches an image forming apparatus comprising a cassette conveyance path (Figure 1) that guides printing paper from at least two paper-feeding cassettes (30) and a tray conveyance path that guides the paper fed from the manual feed tray (75b).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention taught by Inagaki et al. to include two cassettes and a manual feed tray as taught by Takahasi et al., since Takahasi et al. uses the cassettes and tray to provide a storage area for paper that is conveyed in the image apparatus.

Regarding claim 10, Inagaki et al. teaches a return conveyance path (56) along which the printing paper is returned to provide double-sided printing.

6. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki et al. (JP 04-140763) in view of Hashimoto et al. (US Patent 6,445,903) and Takahasi et al. (US Patent 5,839,014).

Inagaki et al. teaches a main feed roller (34a) conveying a printing paper to the image forming unit (12) of the image forming apparatus, a connecting conveyance path (40) connected with a main conveyance path inside a body of the image forming apparatus, a plurality of paper feeding paths (38,68) disposed along an outer circumference of the main feed roller and being confluent along the connecting conveyance path by the main feed roller (Figure 1) and a sub feed roller (34a) rotatably disposed on the connecting conveyance path to adjust and align a position of the printing paper which passes along the connecting conveyance path. Iganaki et al. does not explicitly disclose first, second and third pinch rollers being in tight contact with outer circumferences of the main feed roller and the sub feed roller to assist the conveyance of the printing paper. Hashimoto et al. teaches first, second and third pinch rollers (17a-c) being in tight contact with outer circumferences of the main feed roller (17)and the sub feed roller to assist the conveyance of the printing paper. However, Hashimoto et al. does not teach first and second paper feeding paths along which the printing paper from two paper feeding cassettes are fed, a third paper feeding path along which the printing paper from a manual paper feeding tray is fed, and a fourth paper feeding path along which the printing paper inverted is returned to provide double-sided printing. Takahashi et al. teaches an image forming apparatus that discloses first and second paper feeding paths (Figure 1) along which the printing paper from two paper feeding cassettes (30) are fed, a third paper feeding path (Figure 1) along which the printing paper from a manual paper feeding tray (75b) is fed, and a fourth paper feeding path (Figure 1) along

which the printing paper inverted is returned to provide double-sided printing (75a,75c and Column 6, Lines 5-22).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention taught by Inagaki et al. to include the pinch rollers as taught by Hashimoto et al., since Hashimoto et al. provides a tight connection with the drive roller for the purpose of preventing bent sheets and poor print quality and to include the cassettes and tray as taught by Takahashi et al. , since Takahashi et al. uses the cassettes and tray to temporarily stack the paper in order for the paper to be printed on both sides while conveying through the imaging apparatus.

7. Claims 14-16,18 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki et al. (JP 04-140763) in view of Takahasi et al. (US Patent 5,839,014).

Regarding claims 14,21 and 23, Inagaki et al. teaches an image forming unit (12) forming a desired image on a printing paper (Abstract), a main conveyance path (24) guiding the printing paper to the image forming unit, a paper feeding unit comprising at least one paper feeding cassette (36), a paper feeder conveying the printing paper toward the main conveyance path, wherein the paper feeder comprises a plurality of paper feeding paths (38,68) along which the printing paper fed from the paper feeding unit is guided and a main feed roller (34a) conveying the printing paper, the paper feeding paths disposed along an outer circumference of the main feed roller (Figure 1). However, Inagaki et al. does not explicitly disclose a paper-feeding tray.

Takahashi et al. teaches a paper-feeding tray (75b) that is used for storage. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention taught by Inagaki et al. to include a feeding tray as taught by Takahashi et al., since Takahashi et al. temporarily stacks the paper in order for the paper to be printed on both sides while conveying through the imaging apparatus.

Regarding claim 15, Inagaki et al. teaches wherein the paper feeding paths are confluent along a connecting conveyance path (40) by the main feed roller, and the connecting conveyance path (24) is connected with the main conveyance path (Figure 1).

Regarding claim 16, Inagaki et al. teaches a sub-feed roller (34a) rotatably disposed on the connecting conveyance path to adjust and align a position of the printing paper, which passes along the connecting conveyance path (Abstract).

Regarding claim 20, Inagaki et al. teaches a cassette conveyance path to guide the printing paper fed from at least one paper-feeding cassette (36).

Regarding claim 18, Inagaki et al. teaches at least one pinch roller (34b) rotating in tight contact with outer circumference of the main feed roller (34a) and disposed at an exit path of the paper feeding paths.

Regarding claims 22 and 24, Inagaki et al. teaches a return conveyance path (56)along which the printing paper is returned to provide double-sided printing.

8. Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki et al. (JP 04-140763) in view of Takahasi et al. (US Patent 5,839,014) as

applied to claim 14 above and further in view of Allen et al. (US Patent 6,497,179).

Inagaki et al. teaches the invention claimed, however he does not explicitly disclose a paper sensor disposed on the connecting conveyance path and between the main feed roller and the sub feed roller to determine whether the printing paper being conveyed is a transparent material.

Hashimoto teaches an image forming apparatus that discloses a sensor located on a conveyance path and between a feed roller (17) and sub feed roller (15). However, Hashimoto does not teach a paper sensor that determines whether the printing paper is transparent. Allen et al. distinguishes transparent media using a detector (Abstract).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention taught by Inagaki et al. to include a sensor located between a main feed roller and a sub feed roller as taught by Hashimoto et al., since Hashimoto et al. teaches to provide an efficient way of transporting sheets and further modify Inagaki et al. to include a paper sensor as taught by Allen et al., since Allen et al. teaches the use of the medium detector to provide an acceptable control signal to avoid damage to the printer.

9. Claims 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inagaki et al. (JP 04-140763) in view of Takahasi et al. (US Patent 5,839,014) as applied to claim 14 above and further in view of Hashimoto et al. (US Patent 6,445,903).

Inagaki et al. teaches the invention claimed, however he does explicitly disclose a pinch roller assisting the conveyance of the printing paper by rotating in tight contact with an outer circumference of the sub feed roller. Hashimoto et al. teaches a pinch roller (17a-c) assisting the conveyance of the printing paper by rotating in tight contact with an outer circumference of the sub feed roller (Figure 1).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention taught by Inagaki et al. to include at least one pinch roller in contact with the sub roller as taught by Hashimoto et al., since Hashimoto et al. teaches that such a modification would be beneficial for facilitating media movement.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marissa L Ferguson whose telephone number is (571) 272-2163. The examiner can normally be reached on (M-T) 6:30am-4:00pm and every other (F) 7:30am-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marissa L Ferguson
Examiner
Art Unit 2854

MLF
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